


Annex to Solar Keymark Certificate		Licence Number		011-7S2422 F							
		Date issued		2024-10-23							
		Issued by		DINCertco							
Licence holder		Baltur S.p.A		Country Italy							
Brand (optional)				Web www.baltur.com							
Street, Number		Via Ferrarese 10		E-mail luca.trentini@baltur.it							
Postcode, City		44042 Cento (FE)		Tel +39 051 6843747							
Collector Type				Flat plate collector							
Power output per collector G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s θ _m - θ _a											
Collector name	Gross area (A _G)	Gross length	Gross width	Gross height	0 K	10 K	30 K	50 K	70 K	110 K	
	m ²	mm	mm	mm	W	W	W	W	W	W	
Etasun 20V	2.01	1 675	1 200	50	1 451	1 365	1 180	980	763	281	
Etasun 20H	2.01	1 200	1 675	50	1 451	1 365	1 180	980	763	281	
Etasun 25V	2.51	2 090	1 200	55	1 812	1 705	1 474	1 223	953	351	
Etasun 25H	2.51	1 200	2 090	55	1 812	1 705	1 474	1 223	953	351	
Power output per m ² gross area						722	679	587	487	380	140
Performance parameters test method		Steady state - indoor									
Performance parameters (related to A _G)		η _{0, b}	a1	a2	a3	a4	a5	a6	a7	a8	K _d
Units		-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-
Test results		0.728	4.19	0.010	0.000	0.00	6 553	0.000	0.00	0.0E+00	0.95
Incidence angle modifier test method		Quasi dynamic - outdoor									
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal		K _{θT, coll}	1.00	0.99	0.97	0.95	0.90	0.82	0.65	0.33	0.00
Longitudinal		K _{θL, coll}	1.00	0.99	0.97	0.95	0.90	0.82	0.65	0.33	0.00
Heat transfer medium for testing				Water							
Flow rate for testing (per gross area, A _G)				dm/dt	0.023	kg/(sm ²)					
Maximum temperature difference during thermal performance test				(θ _m - θ _a) _{max}	80	K					
Standard stagnation temperature (G = 1000 W/m ² ; θ _a = 30 °C)				θ _{stg}	200	°C					
Maximum operating temperature				θ _{max, op}	200	°C					
Maximum operating pressure				p _{max, op}	600	kPa					
Testing laboratory		TÜV Rheinland Solar GmbH			www.tuv.com/solar						
Test report(s)		DE23KTBK 001 DE23G9LG 001 DE24P8J7 001 (Doc-check)			Dated		04.07.2023 28.08.2023 23.10.2024				
Comments of testing laboratory						Draft Ver. 6.2 (22.09.2021)					
						 Genau. Richtig. TÜV Rheinland Solar GmbH Am Grauen Stein 51105 Köln					

Annex to Solar Keymark Certificate							Licence Number		011-7S2422 F					
Supplementary Information							Issued		2024-10-23					
Gross Thermal Yield in kWh/collector at mean fluid temperature ϑ_m														
	Standard Locations	Athens			Davos			Stockholm			Würzburg			
Collector name	ϑ_m	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	
Etasun 20V		2 286	1 521	915	1 668	1 075	616	1 239	752	419	1 357	813	443	
Etasun 20H		2 286	1 521	915	1 668	1 075	616	1 239	752	419	1 357	813	443	
Etasun 25V		2 855	1 899	1 142	2 083	1 342	770	1 547	939	523	1 694	1 016	554	
Etasun 25H		2 855	1 899	1 142	2 083	1 342	770	1 547	939	523	1 694	1 016	554	
Gross Thermal Yield per m ² gross area		1 137	757	455	830	535	307	616	374	208	675	405	221	
Annual efficiency, η_a		64%	43%	26%	51%	33%	19%	53%	32%	18%	54%	33%	18%	
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)												
Annual irradiation on collector plane		1765 kWh/m ²			1630 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²			
Mean annual ambient air temperature		18.5°C			3.2°C			7.5°C			9.0°C			
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°			
The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Draft Ver. 6.2 (22.09.2021). A detailed description of the calculations is available at http://www.estif.org/solarkeymarknew/														
Additional Information														
Collector heat transfer medium	Water-Glycole													
The collector is deemed to be suitable for roof integration	No													
The collector was tested successfully under the following conditions:														
Climate class (A+, A, B or C)	A										--			
G (W/m ²) >	1000	ϑ_a (°C) >			20	H_x (MJ/m ²) >			600					
Maximum tested positive load	2000										Pa			
Maximum tested negative load	1750										Pa			
Hail resistance using ice balls (diameter)	35										mm			
Additional collector attribute(s)														
Using external power source(s) for normal operation	No	Active or passive measure(s) for self-protection						No						
Co-generating thermal and electrical power	No	Façade collector(s)						No						
Energy Labelling Information						Additional Informative Technical Data								
	Reference Area, A_{sol} (m ²)					Hydraulic Designation Code				Aperture Area, A_a (m ²)				
Etasun 20V	2.01					1-H-1234S-A:9.2,14800-C:20.6,1130				1.87				
Etasun 20H	2.01					1-H-1234S-A:9.2,15200-C:20.6,1625				1.87				
Etasun 25V	2.51					1-H-1234S-A:9.2,19700-C:20.6,1130				2.35				
Etasun 25H	2.51					1-H-1234S-A:9.2,18900-C:20.6,2020				2.35				
Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}						Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}								
Collector efficiency (η_{col})	54%					Zero-loss efficiency (η_0)				0.72			--	
Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m ² , expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2017.						First-order coefficient (a_1)				4.19			W/(m ² K)	
						Second-order coefficient (a_2)				0.010			W/(m ² K ²)	
						Incidence angle modifier IAM (50°)				0.91			--	
						Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.								
DIN CERTCO • Alboinstraße 56 • 12103 Berlin, Germany														
Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de														